activheal
ACADEMY

PRESSURE INJURY SIMPLIFIED

This Simplified Guide is intended to give you information and answers to some questions you may have about pressure ulcers/injuries.

Pressure ulcers/injuries are a frequently occurring health problem throughout the world. They are a painful, costly and often preventable complication for which many individuals are at risk *(EUPAP, 2019)*.

LEARNING OUTCOMES

- Identify the causes of a pressure ulcer/injury
- Understand the impact of having a pressure ulcer/injury
- The importance of identifying risk factors and areas at risk
- Recognise the difference in pressure ulcer/injury categories

In general, within acute care, there is a gradual and continual decline in pressure ulcer/injury prevalence over the past two decades, driven primarily by increasing international health policy focus on pressure ulcer/injury prevention *(EUPAP, 2019)*. Pressure ulcers/injuries represent a major burden of illness and reduced quality of life for individuals and their caregivers. There is also an increase in morbidity and mortality associated with pressure ulcer/injury development, alongside longer hospital stays, readmission rates and financial costs.

The impact of living with the burden of a pressure ulcer/injury is the same as with a chronic wound, including pain, discomfort, stress, anxiety and depression. Correspondingly, declines in autonomy, security, mental health, general wellbeing and social functioning. Individuals at risk or those having a pressure ulcer/injury identify pain as one of their most significant concerns *(EUPAP, 2019)*.

Pressure ulcer/injury development has become an indicator for the poor quality of nursing care. Protection of the individual patient from pressure damage is a fundamental aspect of nursing care *(Wounds UK, 2013)*.

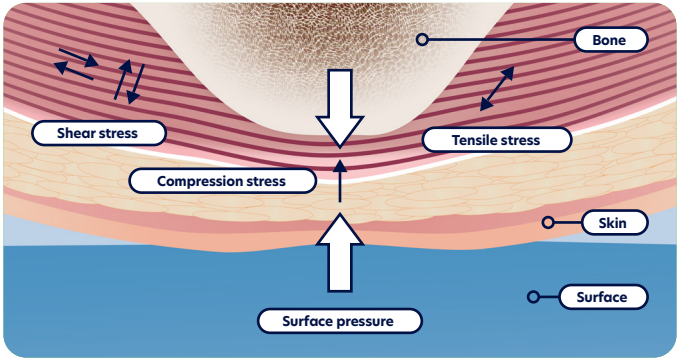
WHAT IS A PRESSURE ULCER/INJURY?

A pressure ulcer/injury can be defined as:

Localised damage to the skin and underlying soft tissue usually over a bony prominence or related to a medical or other device. The injury can present as intact skin or an open ulcer and may be painful. *(EPUAP, 2019)*

A pressure injury can occur due to the forces of an individual's body weight or externally exerted forces such as those applied by a medical device or another object or in combination.

Tissue damage happens because of intense and/or prolonged exposure of a region of skin to sustained distortions in compression (perpendicular to the tissue surface), tension or shear (parallel to the tissue surface), or a combination of these loading types.



The ability of skin to withstand long-term changes in shape or form differs by tissue type. It can be affected by:

- Microclimate
- Perfusion
- Age
- Health status
- Comorbidities
- Conditions of the soft tissues

FACTORS INCREASING RISK OF PRESSURE INJURY

- SKIN STATUS
- REDUCED SENSORY PERCEPTION
- REDUCED MOBILITY
- GENERAL HEALTH
- POOR NUTRITION
- MENTAL STATUS
- UNRELIEVED PRESSURE

(Ousey, 2011; EUPAP, 2019)

SKIN STATUS
Skin type and changes to the integrity, previous skin problems, redness, sub-epidermal moisture, dry skin, and mottled skin can indicate a higher risk and potential early stages of a pressure ulcer.

REDUCED MOBILITY
The loss of the ability to move can lead to prolonged periods of immobility that increase the susceptibility to pressure.

NUTRITIONAL STATUS
Poor nutrition can lead to weight loss or gain, which can then increase the pressure on bony areas of the body. A good diet is also important for the healing of pressure ulcers.

UNRELIEVED PRESSURE
Continual exposure to the component that is causing pressure exacerbates the risk.

LACK OF SENSATION
If the pain signal is absent due to loss of sensation, the individual will not be aware that damage is occurring and the necessity to move.

GENERAL HEALTH
Cardiovascular disease, peripheral vascular disease, and diabetes all cause impaired circulation, increasing the risk of pressure injuries. Long surgical procedures can also elevate the risk.

MENTAL STATUS
An individual with an altered level of consciousness may not feel discomfort or be awake enough to physically reposition themselves. On occasion, an individual may not want to change their position, or they may refuse to use pressure-relieving equipment. In instances like this, the individual's mental health capacity should be considered.

It is essential to acknowledge that some individual groups will have a higher, specific pressure injury-related risk and requirements related to their clinical condition, age or care setting, including the following:

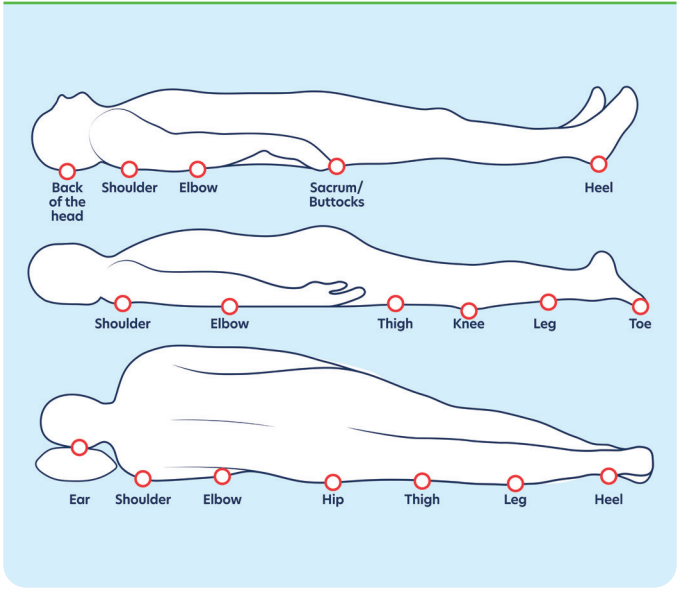
- Spinal cord injury
- Receiving palliative care
- With obesity
- Neonates and children
- In community, aged care and rehabilitation settings
- In the operating room
- In transit

(Norton et al., 2018; EUPAP, 2019)

These intrinsic or extrinsic factors will increase a patient's risk of pressure ulcer/injury development.

INTRINSIC FACTORS	
Malnutrition	Caused by chronic disease, major surgery, nil-by-mouth status and neglect.
Immobility	Caused by sedation, anaesthesia, paralysis, pain, major trauma and chronic diseases.
Age	As a result of age-related loss of sensation in tissues (e.g., skin).
Medical condition	Caused by congestive cardiac failure, chronic respiratory disease, diabetes, anaemia and neurological disease.
Dehydration	Caused by a slowing of the body's metabolism, leading to a reduction in skin rigidity, and increased vulnerability to new wounds.
Poor blood supply	If the individual has a compromised blood supply and or underlying vascular disease, any addition of pressure will cause the skin to break down quicker.
EXTRINSIC FACTORS	
Pressure	Compression of tissue between bone and hard surface.
Shear	Shear forces initiated when part of the body tries to move, but the surface remains motionless against the support surface.
Friction	Friction forces occur when the shearing force increases sufficiently to overcome the body's resistance to being moved. The area of tissue in contact with the support surface will then begin to slide.
Moisture	Can be caused by incontinence, sweating, high temperature and wound exudate. The patient's skin can adhere to the damp surface and exacerbate damage.

WHERE DO PRESSURE ULCERS/INJURIES OCCUR?



Pressure ulcers/injuries are generally most common at anatomical sites over a bony prominence. In adults,the most common locations are the sacrum and the heel. These areas are vulnerable due to the thin layer of subcutaneous tissue between the skin and bone providing minimal protection from the combined forces of pressure, shear and friction. There is often a reduced blood supply to the extremities due to comorbidities that compromise the vascular system. These sites (sacral and heel) account for about half of all pressure ulcers/injuries. Other sites commonly affected include the ischium, ankle, elbow and hip. In children and neonates, the skin over the occiput is most affected *(Norton et al., 2018; EUPAP, 2019).*

DEVICE RELATED PRESSURE ULCER/INJURY

A device related pressure ulcer (DRPU) can be defined as:

An involvement/interaction with a device or object that is in direct contact with skin or is transdermally implanted under the skin, causing focal and localised forces that deform the superficial and deep underlying tissues.

A DRPU, which is caused by a device or object, is distinct from a pressure ulcer/injury, which is caused primarily by body-weight forces.

The localised nature of the device's interaction with the patient's tissue results in the appearance of skin and deeper tissue damage that mimics that of the device in shape and distribution *(Geffen et al., 2022).*

Medical devices, including nasogastric tubes and ventilation masks can be made of rigid material, which in turn can cause rubbing or create pressure on the soft tissues *(Jaul, 2010).*

It is known that a significant proportion of pressure ulcers/injuries in critically ill or immobile patients are related to the use of medical devices *(Black et al., 2010).* These are not always avoidable and require techniques to help reduce or prevent skin damage beneath medical devices. Medical devices, including nasogastric tubes and ventilation masks can be made of rigid material, which in turn can cause rubbing or create pressure on the soft tissues *(Jaul, 2010).*

Medical device related pressure ulcers/injuries can be caused by:

- The rigid material from which the device is made
- Poor device selection and application
- Placement on body sites with little adipose tissue
- Changes caused by the device to the microclimate of the underlying skin
- Fixation methods employed to secure the device

(Dyer, 2015)

It is important to be aware that not all medical device related damage occurs over a bony prominence *(Young, 2017)*. Many device related pressure ulcers/injuries occur because of poor positioning or fixation of equipment, or simply failure to check the device is repositioned correctly.

PREVENTING DEVICE RELATED PRESSURE ULCERS/INJURIES

- Correct positioning and care of equipment with appropriate fixation and stabilisation of the device.
- Use thin hydrocolloids, film dressings or barrier products underneath the device to reduce moisture friction and shear.
- Use of pressure reducing dermal gel pads *(Fletcher, 2012)*.
- Early removal of devices - medical devices that have an increased potential to harm by causing pressure damage should be removed as soon as is medically feasible.
- Monitoring appearance of skin and presence of pain - the skin under and around a medical device should be inspected at least twice a day.
- Patient and carer/nurse education and training - involving the patient and/or carer by explaining the rationale for use and points to be aware of to reduce damage *(Young, 2017)*.

PREVENTION AND MANAGEMENT OF PRESSURE ULCERS/INJURIES

PRESSURE RELIEVING EQUIPMENT	REPOSITIONING
SKIN CARE	NUTRITION
WOUND CARE	PATIENT EDUCATION

PRESSURE RELIEVING EQUIPMENT

Pressure ulcers/injuries will not heal if they continue to be subjected to the forces that caused them. The equipment works by redistributing the pressure over a greater area of the body, so that the individual point supports less pressure.

REPOSITIONING

Repositioning involves moving patients into different positions to remove or redistribute pressure from a particular part of the body. However this action may itself cause trauma if not carried out correctly. (See Pressure Ulcer/Injury Prevention Simplified Guide for further information on repositioning).

SKIN CARE

Skin care is crucial to prevent any further breakdown of the skin, in addition to improving the skins natural barrier. The skin should be inspected and cleansed regularly. Prevention of skin breakdown is paramount. Emollients and in some cases barrier creams can be effective to prevent the breakdown of intact skin and protect vulnerable skin.

NUTRITION

Good nutrition is essential in the management of pressure ulcers/injuries. Adequate nutritional intake is essential to wound healing. Patients may need a greater proportion of protein in their diet to help ensure a positive nitrogen balance and replace any lost protein through their ulcers. A patient's nutritional status should be assessed.

WOUND CARE

Wound care must be optimised and follow the basic principles of wound care:

- Debride necrotic or sloughy tissue and clean the wound to remove any debris
- Provide a moist wound healing environment through the use of appropriate dressings
- Maintain an optimal bacterial balance
- Protect the wound from further injury

Please refer to your local policy

PATIENT EDUCATION

The role of education is to gain the best outcome for the patient. This is achieved through effective teaching of the individual, their family and/or carers about the principles of pressure ulcer/injury management.

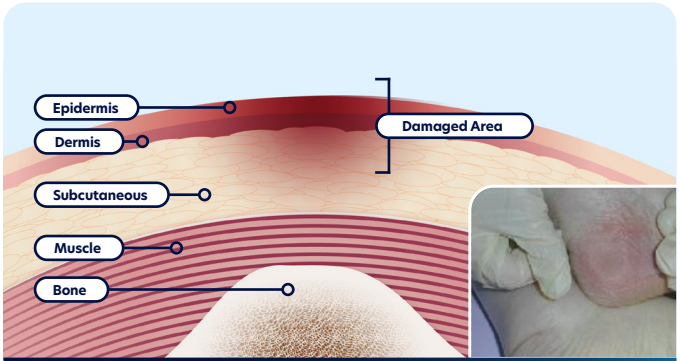
The information given to the patient/carer should include:

- The cause of a pressure ulcer/injury
- The early signs of a pressure ulcer/injury
- Ways to prevent a pressure ulcer/injury
- Implications of having a pressure ulcer/injury (for general health, treatment, options and future development risks)
- Techniques and equipment

EPUAP (EUROPEAN PRESSURE ULCER ADVISORY PANEL) PRESSURE ULCER CLASSIFICATION 2019

Categorising pressure ulcers/injuries can be complex. There are guidelines that have been extensively researched and reviewed to support identifying the categories. The table below represents a globally recognised pressure ulcer/injury classification system published by the EPUAP (including National Pressure Injury Advisory Panel (NPIAP) and Pan Pacific Pressure Injury Alliance. Prevention (PPPIA)) in 2019.

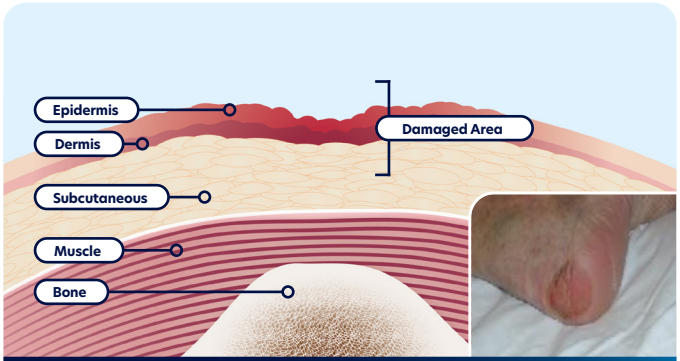
CATEGORY/STAGE 1: NON-BLANCHABLE ERYTHEMA



Intact skin with non-blanchable redness of a localised area usually over a bony prominence.

The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue. Darkly pigmented skin may not have visible blanching; its colour may differ from the surrounding area. Category 1 may be difficult to detect in individuals with dark skin tones. May indicate "at risk" persons.

CATEGORY/STAGE 2: PARTIAL THICKNESS



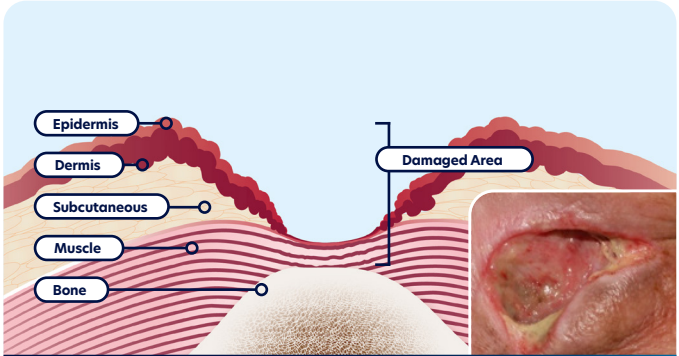
Partial-thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed without slough.

May also present as an intact or open/ruptured serum filled or serosanguinous filled blister. Presents as a shiny or dry shallow ulcer without sloughing or bruising.

This category should not be used to describe skin tears, tape burns, incontinence associated dermatitis, maceration or excoriation. Bruising indicates deep tissue injury.

EPUAP (EUROPEAN PRESSURE ULCER ADVISORY PANEL) PRESSURE ULCER CLASSIFICATION 2019

CATEGORY/STAGE 3: FULL THICKNESS SKIN LOSS

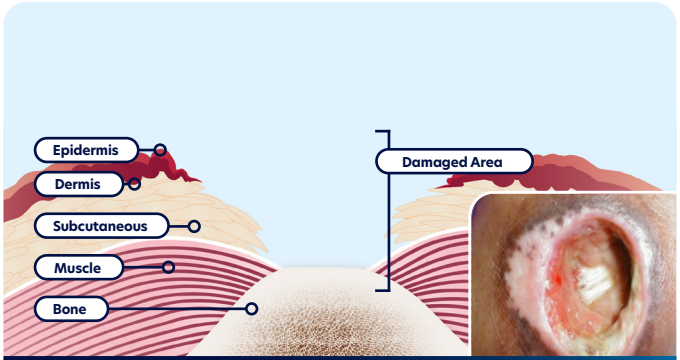


There is epidermis and dermis loss.

Subcutaneous fat may be visible, but bone, tendon or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunnelling. The depth of a category/stage 3 pressure ulcer/injury may vary but skin layers involved are more consistent between anatomical sites.

The bridge of the nose, ear, occiput and malleolus do not have (adipose) subcutaneous tissue and category/stage 3 ulcers can be shallow. In contrast, areas of significant adiposity can develop extremely deep category/stage 3 pressure ulcers/injuries. Bone/tendon is not visible or directly palpable.

CATEGORY/STAGE 4: FULL THICKNESS TISSUE LOSS WITH EXPOSED BONE, TENDON OR MUSCLE

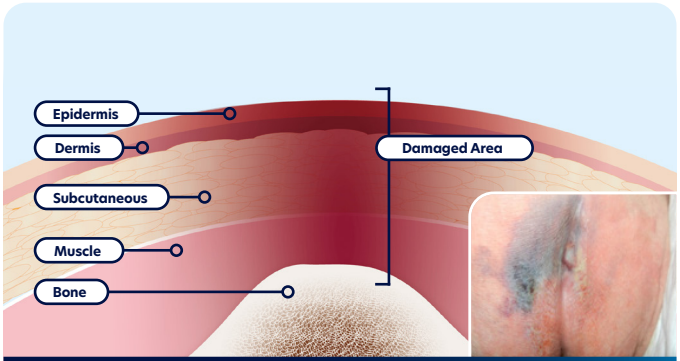


There is full loss of the epidermis, dermis and subcutaneous fat.

Slough or eschar may be present. Often includes undermining and tunnelling. The depth of a category/stage 4 pressure ulcer/injury varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have (adipose) subcutaneous tissue and these ulcers can be shallow. Category/stage 4 ulcers/injuries can extend into muscle and/or supporting structures (e.g. fascia, tendon, or joint capsule) making osteomyelitis or osteitis likely to occur. Exposed bone/muscle is visible or directly palpable.

EPUAP (EUROPEAN PRESSURE ULCER ADVISORY PANEL) PRESSURE ULCER CLASSIFICATION 2019

DEEP TISSUE INJURY

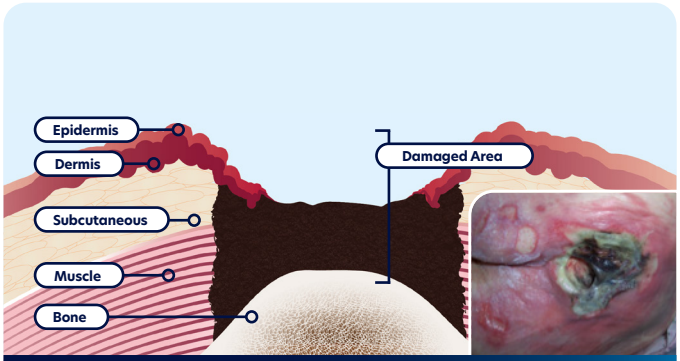


Purple or maroon localised area of discoloured intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear.

The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue. Deep tissue injury may be difficult to detect in individuals with dark skin tones.

Evolution may include a thin blister over a dark wound bed. The wound may further evolve and become covered by thin eschar. Evolution may be rapid, exposing additional layers of tissue even with optimal treatment.

UNSTAGEABLE



Full-thickness loss in which actual depth is completely obscured by slough and/or eschar in the wound bed.

Until enough slough and/or eschar is removed to expose the base of the wound, the true depth and therefore stage cannot be determined, but it will be either a Category 3 or 4.

SKIN TONES

Health care professionals and carers are typically taught to look for redness (erythema) as a first sign of pressure damage and in Caucasian skin this can be easily identified.

However, it can be difficult to diagnose accurately when assessing individuals with darker skin tones *(Oozageer Gunowa et al., 2017)*.

Several signs and symptoms that health care professionals have been taught to observe for can present differently according to the individual's skin tone. It has been found that dark skin rarely shows the blanching response that is a common factor to look out for, and erythema may too, be hard to see *(Grimes, 2009; Wounds UK, 2020)*. Skin irritation in those with dark skin tones may cause hyperpigmentation or hypopigmentation, with no visible redness *(Nijhawan and Alexis, 2011; Wounds UK, 2020)*.

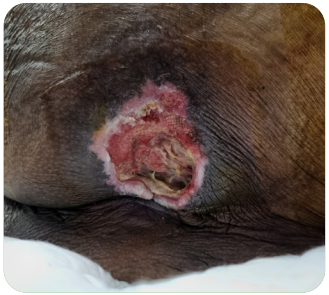


FIGURE 3 - Example of a pressure ulcer/injury in darker skin.

POSSIBLE PRESENTATIONS	TIPS FOR IN PRACTICE
▸ Change in skin colour: this may present as redness, darkening, lightening or grey/ blue/purple tones	▸ Ensure that the skin is inspected thoroughly with an awareness of skin tone variance.
▸ The skin may feel tight, spongy or appear shiny	NB Delayed identification of pressure damage due to skin tone comprises to an oversight in care that has led to patient harm
▸ Change in temperature - check if the skin feels cold or hot	
▸ Pain or numbness over the affected area	

(Adapted from Wounds UK, 2020)

MOISTURE ASSOCIATED SKIN DAMAGE (MASD)

There is often confusion between a pressure ulcer/injury and a moisture lesion due to the presence of moisture, which may be as a result of incontinence of urine and/or faeces *(EPAUP, 2019)*.

- Moisture lesions are often reported as category 2 pressure damage
- It is important to identify the cause of any skin damage, as the treatment and management of pressure damage and moisture associated skin damage may differ *(Yates, 2012)*.

	PRESSURE ULCER/INJURY	MOISTURE LESIONS
Causes	Pressure and/or shear must be present.	Desiccation (drying/dried out), and loose skin may indicate additional shearing injury.
Location	The wound is likely to be over a bony prominence.	A moisture lesion may occur over a bony prominence. Pressure and shear should be excluded as causes if moisture is present.
Shape	Circular wounds with a regular shape that are limited to a single spot are likely to be a pressure ulcer/injury.	Diffused, different superficial spots are more likely to indicate moisture lesions.
Depth	A pressure ulcer can be superficial, partial-thickness up to full-thickness skin loss.	Superficial to partial-thickness skin loss. Depth may increase if they become infected.
Necrosis	Necrosis can be present.	No necrosis.
Edges	Distinct edges.	Diffused or irregular edges.
Colour	Non blanchable, red skin is likely to be a pressure ulcer/ injury. However, within a wound, red tissue indicates granulation, whereas black necrotic tissue is likely to be a pressure ulcer/injury.	Redness that is not uniformly distributed is likely to be a moisture lesion, whereas pink or white skin surrounding a wound is likely to be maceration due to moisture.

(Adapted from Yates, 2012)

CONCLUSION

Pressure ulcers/injuries are a serious health problem. Prevention and early intervention are critical for effective management. Successful prevention is key but requires a comprehensive approach. Mobilisation, if possible, is an important component in the management of pressure ulcers/injuries, as being immobile can have significant consequences. Encourage and assist the patient to move or shift into a new position. Mobilisation will help to reduce the duration and magnitude over vulnerable areas of the body.

REFERENCES

Black J, Cuddington, J. Walko, M. Didier, L.A., Lander, M.J. and Kelpe, M.R. (2010) Medical Device Related Pressure Ulcers in Hospitalized Patients. International Wound Journal. 7 (5) 358-65. ||| Black JM, Brindle CT, Honaker JS (2016) Differential diagnosis ofsuspected deep tissue injury. Int Wound J 13: 531-39. ||| Dyer. A. (2015) Wounds International 2015 | Vol 6 Issue 1 | ©Wounds International 2015 | www.woundsinternational.com ||| European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Injury Alliance. Prevention and Treatment of Pressure Ulcers/Injuries: Quick Reference Guide. Emily Haesler (Ed.). EPUAP/NPIA/PPPIA:2019. ||| Fletcher, J. (2012) Device Related Pressure Ulcer. Made Easy Wounds UK. HYPERLINK http://www.wounds-uk.com. ||| Gefen A, Alves P, Ciprandi G et al. Device-related pressure ulcers: SECURE prevention. Second edition. J Wound Care 2022; 31; 3 (Suppl 1):S1–S72. ||| Grimes PE (2009) Management of hyperpigmentation in darker racial ethnic groups. Seminars in Cutaneous Medicine and Surgery 28: 77-85 ||| Jaul, F. (2011) A Prospective Pilot Study of Atypical Pressure Ulcer Presentation in a Skilled Geriatric Nursing Unit Ostomy Wound Management.57 (2) 49-54. ||| Moore, Z. ||| Thorpe. E. (2015) Dressing for pressure ulcer prevention made easy. London: Wounds UK. Available from www.wounds-uk.com. ||| Medicine.net. William C. Shiel Jr., MD, FACP, FACR. Medical definition of prevalence 2018 (accessed Aug 2019). ||| NHS Improvements: Pressure ulcers: revised definition and measurement. Summary and recommendations. Available at: https://improvement.nhs.uk/documents/2932/NSTPP_summary__recommendations_2.pdf. ||| Nijhawan R, Alexis A (2011) Practical approaches to medical and cosmetic dermatology in skin of color patients. Expert Review of Dermatology 6: 175-87 ||| Norton L, Parslow N, Johnston D, Ho C, Afalavi A, Mark M, et al. Best practice recommendations for the prevention and management of pressure injuries. In: Foundations of Best Practice for Skin and Wound Management. Supplement of Wound Care Canada; 2017. 64 pp. Retrieved from: www.woundscanada.ca/docman/public/health-care-professional/bpr-workshop/172-bpr-prevention-andmanagement-of-pressure-injuries-2/file. ||| Ousey, K. (2011) Pressure Ulcers: How to identify different categories. Wound Essentials. Vol 6 pg8-12. ||| Oozageer Gunowa N, Hutchinson M, Brooke J et al (2017) Pressure injuries in people with darker skin tones: A literature review. Journal of Clinical Nursing. ||| Public Health England: Guidance, Pressure ulcers: applying All Our Health. Published 1 April 2015. ||| Stephen-Haynes, J. (2011) Skin Damage: Management in the Older Person. Wound Essentials. 6. 40-43. ||| Wilson, M. (2010) A brief guide to pressure ulcer assessment. Wound Essentials. Vol 5. P 12-20. ||| Wound essentials (2012) Pressure ulcer management how to guide. Vol 7 Issue 1 June . ||| Wounds UK Consensus Document. Recognising, managing and preventing deep tissue injury (DTI). London: Wounds UK, 2017. Available to download from: www.wounds-uk.com. ||| Yates, S. Differentiating between pressure ulcers and moisture lesions. Wounds Essentials 2012, Vol 1. ||| Young .T.(2017) Back to basics: understanding the aetiology of pressure ulcers. Wounds UK | Vol 13 | No 3 | 2017. ||| Wounds UK (2021) Best Practice Statement: Addressing skin tone bias in wound care: assessing signs and symptoms in people with dark skin tones. Wounds UK, London

NOTES

activheal

Simplifying the Complexities of Wound Care

academy.activheal.com

Advanced Medical Solutions

Advanced Medical Solutions
Premier Park, Road One, Winsford Industrial Estate,
Winsford, Cheshire CW7 3RT